M64 MODIFIED POLYURETHANE CONSTRUCTION SEALANT

PRODUCT NAME

CRL M64 Modified Polyurethane One Component Elastomeric Construction Sealant with a Smooth Finish Appearance.

PRODUCT DESCRIPTION

CRL M64 is a one-part, medium modulus, moisture curing sealant. CRL M64 offers excellent primerless adhesion on most common construction surfaces, including Kynar™ coated metals.

CRL M64 CONFORMS TO AND PASSES:

- Federal Specification TT-S-00230C, Type II, Class A.
- ASTM C920-98, Type S, Grade NS, Class 25, Use NT, M, T, A, G, and O.
- ASTM C510, ASTM C639, ASTM C661, ASTM C679, ASTM C717, ASTM C719, ASTM C793, ASTM C794, ASTM C1183, ASTM C1193, ASTM C1246, ASTM D412, ASTM D624, and ASTM G155.
- CAN/CGSB-19, 13-M87, Type MCG-2-25-A-N, QPL # 81026.
- AAMA 808.3-92 Exterior Perimeter, AAMA 802.3-92 Type II Ductile Back Bedding Compound.
- USDA approved for use in meat and poultry areas.

USES

CRL M64 Modified Polyurethane Construction Sealant is specially formulated to outperform traditional VOC solvent polyurethanes for sealing moving joints in concrete, masonry, metal, and other basic perimeter joint applications. It is ideal for all joints between framing (door and window) and the building structure in both storefront and curtain wall applications to secure a watertight installation. This advanced polymer formula offers excellent adhesion to fluoropolymer paint coatings for metal surfaces including Kynar™, Duranar®, and Duranar® Sunstorm™ Coatings, as well as standard metal, aluminum, steel, galvanized steel, plastics, vinyl, glass, wood, concrete, brass, and other common building substrates.

CRL M64 has been used in manufacturing uses such as production of travel trailers, motor homes, mobile homes, and modular prefab houses. Heating and air conditioning companies use CRL M64 on galvanized duct components.

This Eco-Friendly sealant contains no solvents or isocyanates, and is VOC compliant.

FEATURES

- Exceptional adhesion to Kynar™ coated metals.
- VOC Compliant – only 9 g/L (Chemically curing < 3%).
- Eco-Friendly Product – Solvent-Free, Isocyanate-Free, VOC Compliant, Qualifies for LEED Credit for Section EQ (Indoor Environmental Air Quality).
- Low temperature gunning and application above 0°F (18°C).
- Service temperature from -75°F to 300°F (-59°C to 149°C).
- Permanently Flexible – Will not get hard with age like traditional polyurethanes. Remains flexible in low temperatures.
- Fast Cure - Skins over in 30 minutes and continues to cure at a rate of 1/8 inch (3 mm) depth per day.
- Tooling time – approximately 20-40 minutes, depending on temperature and humidity.
- Paintable – Can be painted in only two hours with water-based paints.
- UV Resistant – Will not turn yellow from exposure to the sun.

LIMITATIONS

CRL M64 is not recommended for:

- Horizontal decks, patios, driveway or terrace joints where abrasion or physical abuse is encountered.
- Interior or exterior sealing below the waterline in marine applications.
- Not recommended for surfaces with special protective or cosmetic coatings without prior consultation of the manufacturer. Such surfaces include, but are not limited to mirrors, reflective glass, surfaces coated, polyethylene or polypropylene.
- CRL M64 Modified Polyurethane Construction Sealant should not be applied with wet tooling techniques: the use of solvents, water or detergent/soap solutions is not recommended.
- CRL M64 Modified Polyurethane Construction Sealant should not be applied to unpredictably absorptive surfaces such as marble, limestone or granite unless a standard of appearance has been agreed on as a result of testing for stain and/or discoloration.

TECHNICAL DATA

The physical properties of CRL M64 are shown below in Table 1.

TABLE 1 - PHYSICAL PROPERTIES

Property/Test Methods	Value
Shore A Hardness - Durometer	30 ± 5
Tensile Strength, ASTM D-412-68	380 psi
Elongation (Ultimate), ASTM D-412-68	1000%
Shrinkage	Nil
Weatherometer Atlas Xenon Arc	No Change (4500 hrs)
Adhesion-in-Peel	Aluminum-25 ± 3 pli Concrete-25 ± 3 pli Brick-20 ± 3 pli
Low Temperature Flexibility, ASTM D-746	-40°F
Extrusion Rate	35g/min. ± 5, midified 1/8" orifice
Service Temperature Range	-75° - 300°F (-59° - 149°C)
Movement Capability	± 25%

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COVERAGE

The following tables indicates the number of linear feet filled by one gallon or twelve 10.1 fl. oz. cartridges.

LINEAR FEET PER GALLON

Joint Depth (Inches)	Joint Width (Inches)						
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
1/4"	308	205	154	122	107	91	80
3/8"	—	136	102	82	68	58	51
1/2"	—	81	77	61	51	44	38

LINEAR FEET PER CARTRIDGE

Joint Depth (Inches)	Joint Width (Inches)						
	1/4"	3/8"	1/2"	5/8"	3/4"	7/8"	1"
1/4"	24	20	12	10	8	7	6
3/8"	—	12	8	7	6	5	4
1/2"	—	—	6	5	4	3	2

JOINT DESIGN

A variety of factors are considered when designing the joint width and depth. The main areas of concern are maximum expansion, surface materials and their expected thermal change.

When possible, CRL M64 Modified Polyurethane Construction Sealant should be applied when the joint is at its median opening, so as to obtain the greatest efficiency with joint movement. The dimensions of the joint must be established according to expected movement, number and location of joints. The design should be such that movement on any joint should not exceed ±25% maximum. This joint size can be calculated by determining the expected movement within the joint between the high and low temperature extremes and multiplying the change by a factor of four.

For example, it is determined the joint will open and close 1/4" between temperature extremes, it follows, 4x1/4"=1". The example joint should be a minimum of 1" wide. The depth of the sealant is also a very important consideration. The standard rule of thumb is that the depth should be half the width of the joint, with a maximum depth of 1/2", and a minimum of 1/4". See Table 2 below for further details. In deep joints, the sealant depth should be controlled by the use of back-up material. These materials must be approved for this application, as well as non-impregnated

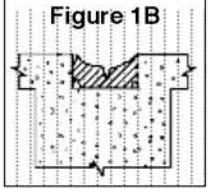
TABLE 2 - JOINT WIDTH AND SEALANT DEPTH

Joint Width Inches	Sealant Depth At Midpoint Inches
1/4" to 1/2"	1/4"
1/2" to 1"	3/8" to 1/2"
1" to 2"	1/2"

Figure 1A

Backer Rod is installed by compressing and rolling it into joint channel without stretching lengthwise. The rod must conform to the manufacturer's recommendations as to size in relationship to joint width. Do not puncture during installation when using closed cell backer rod.

Figure 1B



Joints without Bond Breaker: three-sided adhesion causes joint failure.

Figure 1C

Joints with Bond Breaker: two-sided adhesion allows sealant to stretch with joint movement.

and compressible. When required, a bond breaker (polyethylene strip) must be used to prevent three point bonding. (See figures 1A,1B and 1C).

INSTALLATION

CLEANING

All surfaces where sealant is going to be applied must be dry, clean, free of loose particles, oil, grease, asphalt, tar, wax, rust, waterproofing coatings, mold release agents, and membrane materials, etc.

- MASONRY: Concrete, stone and other masonry must be cleaned with wire brushing, grinding, or sandblasting. A sound surface free of contamination must be achieved before sealant application.
- METAL: Metal finishes should be tested for adhesion on all new construction. Scale, rust, oils, grease, oxide, and protective lacquer coatings must be removed prior to sealant application. When using solvents on job sites all E.P.A. recommendations for handling and safety must be followed. Any chemical residue or film must be removed prior to sealant application. Reference S.W.I. and NGA manuals for standard industry cleaning procedures.

PRIMING

M64 is typically applied without the need for any primer. Excellent adhesion to most common building materials, including Kynar™ coated metals.

APPLICATION

Apply CRL M64 using a professional sealant gun loaded at the job site. CRL M64 maintains excellent gunnability over a broad temperature range. Joint should be filled from bottom up. Proper size nozzle and gun angle are extremely important when applying sealant to assist in the wetting out process. Install back-up material or joint filler, spacer shims and tapes as specified. Apply CRL M64 in a continuous operation using a positive pressure adequate to properly fill and seal the joint. Tool the sealant with adequate pressure to spread the sealant against the back-up material and onto the

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joint surfaces. A tool with a concave profile is recommended to keep the sealant within the joint.

Excess sealant should be dry-wiped from non-porous surfaces while still uncured, following with a commecial solvent such as mineral spirits, or isopropyl alcohol. Should sealant accidentally begin to cure on adjacent porous surfaces, the excess sealant should be allowed to progress through the initial cure or set-up. It should be then removed promptly by abrasion or other mechanical means.

APPLICATION TEMPERATURE

Moisture on substrates will adversely affect adhesion and can be found at temperatures below 40°F (4°C). Methyl ethyl ketone (MEK) is soluble in water and may be more appropriate for winter cleaning as it helps in removing condensation and frost. CRL M64 Modified Polyurethane Construction Sealant maintains excellent gunnability over a broad temperature range. At 75°F (23.9°C), 50% R.H. a durable skin forms in 30 minutes. Curing continues at the rate of 1/8 inch (3 mm) depth per day. M64 can be painted in two hours. The cure rate is reduced at lower temperatures and less humidity. After a complete cure, all chemical components of M64 can be considered inert.

CLEAN-UP

Immediately after use and before sealant has cured, equipment must be cleaned with mineral spirits, or isopropyl alcohol. The cured sealant may be removed by cutting with a sharp edged tool; thin films removed by abrading.

CURED SEALANT IS USUALLY VERY DIFFICULT TO REMOVE WITHOUT ALTERING OR DAMAGING THE SURFACE TO WHICH THE SEALANT HAS BEEN MISAPPLIED.

PACKAGING

CRL M64 Modified Polyurethane Construction Sealant is stocked in 10.1 fl. oz. (300 ml) cartridges (30/case), and 20 fl. oz. (600 ml) sausages (15/case). 2 gallon and 5 gallon pails upon request.

PRECAUTION

Uncured sealant may irritate the eyes. Avoid contact with eyes and skin. Contact lens wearers take appropriate precautions. IN CASE OF CONTACT, FLUSH EYES WITH WATER, CALL A PHYSICIAN. Remove from skin with dry cloth or paper towel. KEEP OUT OF THE REACH OF CHILDREN.

SHELF LIFE

When stored at or below 80°F (27°C), CRL M64 Modified Polyurethane Construction Sealant has a shelf life of one year from date of manufacture.

MAINTENANCE

No maintenance should be needed. If sealant becomes damaged, replace damaged portion. Clean surfaces in damaged area and repair with fresh CRL M64 Modified Polyurethane Construction Sealant.

COLORS

7 standard colors and 23 CRL/U.S. Aluminum special colors. Custom colors available upon request.

TECHNICAL SERVICE

Complete technical information and literature is available from C.R. Laurence Co., Inc. Any technical advice furnished by the company or any representative of the company concerning any use or application of any sealant is believed to be reliable, but the company makes no warranty, expressed or implied, for any use or application for which such advice is furnished.

LIMITED WARRANTY NOTICE

CRL and its manufacturer warrant our products to be of good quality and will replace or, at our election, refund the purchase price of any products proved defective. Satisfactory results depend not only upon quality products but also upon many factors beyond our control in the application process. Therefore, except for such replacement or refund CRL and its manufacturers make no warranty or guarantee, expressed or implied, including warranties of fitness or merchantability, respecting its products. CRL and its manufacturers shall have no other liability with respect thereto. User shall determine the suitability of the product for his intended use and assume all risks and liability in connection therewith. Any authorized change in the printed recommendations concerning the use of our products must bear the signature of the CRL Product Manager.

COOPERATIVE TESTING

Materials submitted for testing should be sent to:

C.R. Laurence Co., Inc.
Technical Sales Department
PO Box 58923
Los Angeles, CA 90058-0923

This program is intended to eliminate potential field problems by pretesting CRL construction sealants with samples of the building materials on which the sealant will be applied. The test will aid in determining the proper surface preparation method, effective solvents for cleaning and whether priming is necessary to achieve optimum adhesion. Following this procedure will remove many of the unknown variables which affect field success.

Test samples of substrates should be identified as to manufacturer, origin, designed use, building project, person and firm originating the request. Appropriate sketches or drawings showing the intended use can be helpful.

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